Environmental testing – Test Eh: Hammer test (IK Degree)

Prove ambientali – Prova Eh: Prove di impatto (Grado IK)

Ref: test procedure IL22016
Rif: procedura di test IL22016

Device under test *Dispositivo testato*	CPTIN5507 LS P1M4ARO1RS14G1WTTSPFAC-		
P/N *P/N*	993201601606		
Lab sample ID *ID campione*	372 A	**Received date** *Ricevuto il*	02/05/2022
Derived models *Modelli derivati*	See the paragraph 7.1.		
Standard/Rev. Date/Ed. *Standard/Data Revisione/Ed.*	**EN 60068-2-75:1997–** *Environmental testing – Part 2-75: Tests, Test Eh: Hammer tests* **EN 62262:2002-07** *– Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*		
Manufacturer *Costruttore*	AESYS S.p.A. Via Pastrengo 7c 24068 Seriate (BG) Italia Tel: +39.0352924111 www.aesys.com		
Start test date *Data inizio test*	03/05/2022	**End test date** *Data fine test*	03/05/2022
First issue *Prima emissione*	03/05/2022		
Laboratory Technician *Tecnico di laboratorio*	Sergio Fustinoni		
Laboratory Manager *Responsabile di laboratorio*	Marco Verzeroli		
Verdict *Esito*	COMPLIANT		
Revision *Revisione*	000	**Revision date** *Data revisione*	03/05/2022

Revision	Reason	Name	Sign
000	First release		

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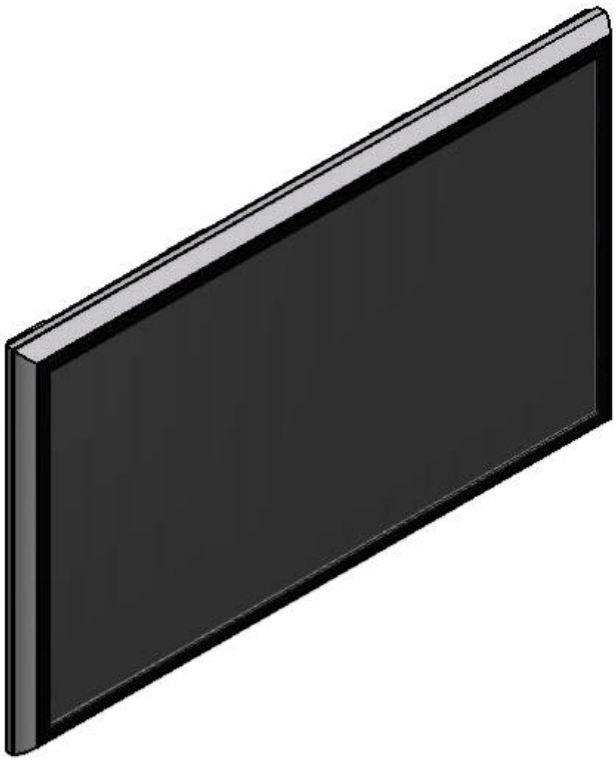
1 DUT – GENERAL INFORMATIONS
DUT – INFORMAZIONI GENERALI

The DUT (Device Under Test), named **CPTIN5507 LS P1M4ARO1RS14G1WTTSPFAC-**, is a variable message panel based on TFT technology used for video-information in railways applications.



< EUT Picture>

<EUT Label>

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2 TEST PROCEDURE
PROCEDURA DI PROVA

Test performed according to Aesys internal procedure *IL22016_Protezione contro gli impatti meccanici esterni.*

3 TEST EQUIPMENT
STRUMENTAZIONE DI PROVA

ID	Description	Model	Manufacturer	Serial n°	Last Calibration Date	Next Calibration Date
354	Hammer IK07	02.26-002	GALBUSERA	002	03/06/2020	11/06/2030
134	Hammer IK10	5 Kg	GALBUSERA	02,26 20J	18/05/2017	26/05/2027

4 TEST PARAMETERS
PARAMETRI DI PROVA

Test method according to **EN 60068-2-75:1997** – *Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests*

IK Degree classification according to **EN 62262**: **2002-07** – *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts.*

- **Test IK 07**

IK Degree	7
Energy [J]	2
Equivalent mass [Kg]	0,5
Height of fall [mm]	400
Impact points	5

- **Test IK 10**

IK Degree	10
Energy [J]	20
Equivalent mass [Kg]	5
Height of fall [mm]	400
Impact points	5

Test measurements uncertainty:

Mass of the hammer:	± 2%
Height of fall:	± 2cm

Measurement uncertainties estimated as extended uncertainty, obtained multiplying the standard uncertainty by the coverage factor *k* corresponding to a confidence level of about 95%.

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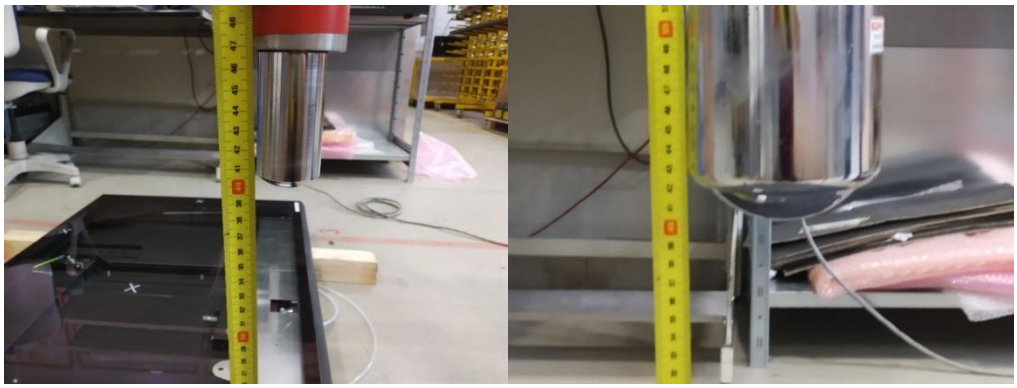
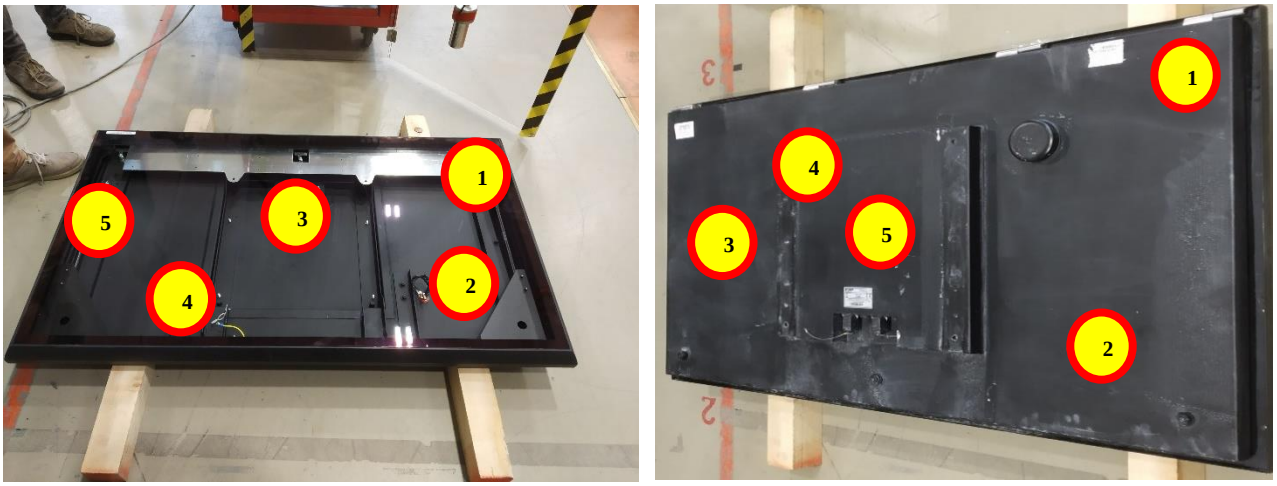
5 TEST SETUP
SETUP DI PROVA

The verification of protection against impacts consists of a striking element, which falls freely from rest through a vertical height of 300mm onto the specimen surface held in a horizontal plane.
The characteristics of the striking element is compliant to the specifics given in the standard EN 60068-2-75:1997

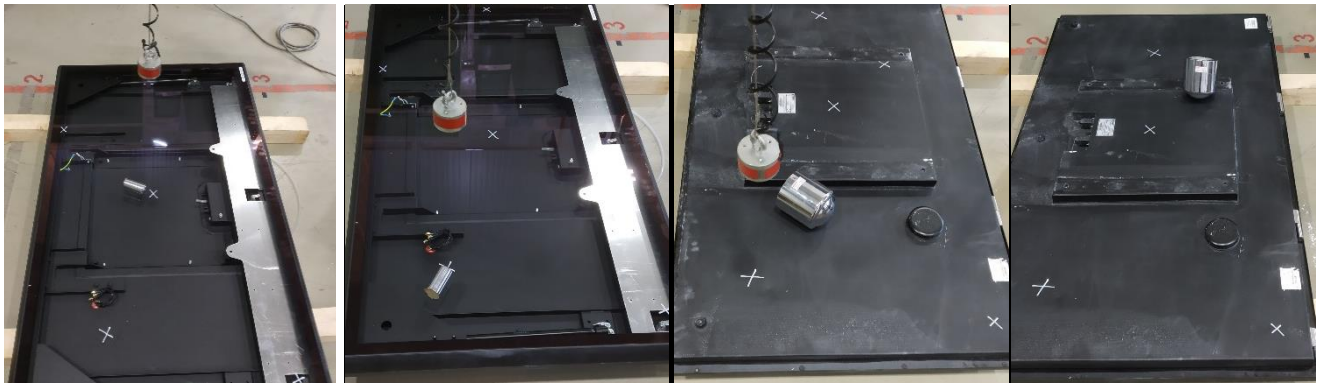


<Test arrangement>

5.1 Setup pictures and impact points definition
Foto del setup e definizione dei punti di impatto



Impact points



Test impact

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6 TEST RESULT
RISULTATO DELLA PROVA

Test	Performance criteria	Result	Verdict
Environmental temperature	Between +15°C and +35°C	23*C	PASS
Relative humidity	Between 25% and 75%	40%	PASS
Pressure	Between 860 and 1060 hPa	977hPa	PASS

- Test IK 07 → Glass

Impact point	Performance criterion	Result	Verdict
1	No challenge to security: no live parts accessible after test, no reduction of isolations.	no loss of performances	PASS
2		no loss of performances	PASS
3		no loss of performances	PASS
4		no loss of performances	PASS
5		no loss of performances	PASS

- Test IK 10 → Enclosure

Impact point	Performance criterion	Result	Verdict
1	No challenge to security: no live parts accessible after test, no reduction of isolations.	no loss of performances	PASS
2		no loss of performances	PASS
3		no loss of performances	PASS
4		no loss of performances	PASS
5		no loss of performances	PASS

Performance criterion as per product standard or customer request. In each case, the minimum criterions are:
- No challenge to security: no live parts accessible after test, no reduction of isolations.
- Visual check, no loss of performances.

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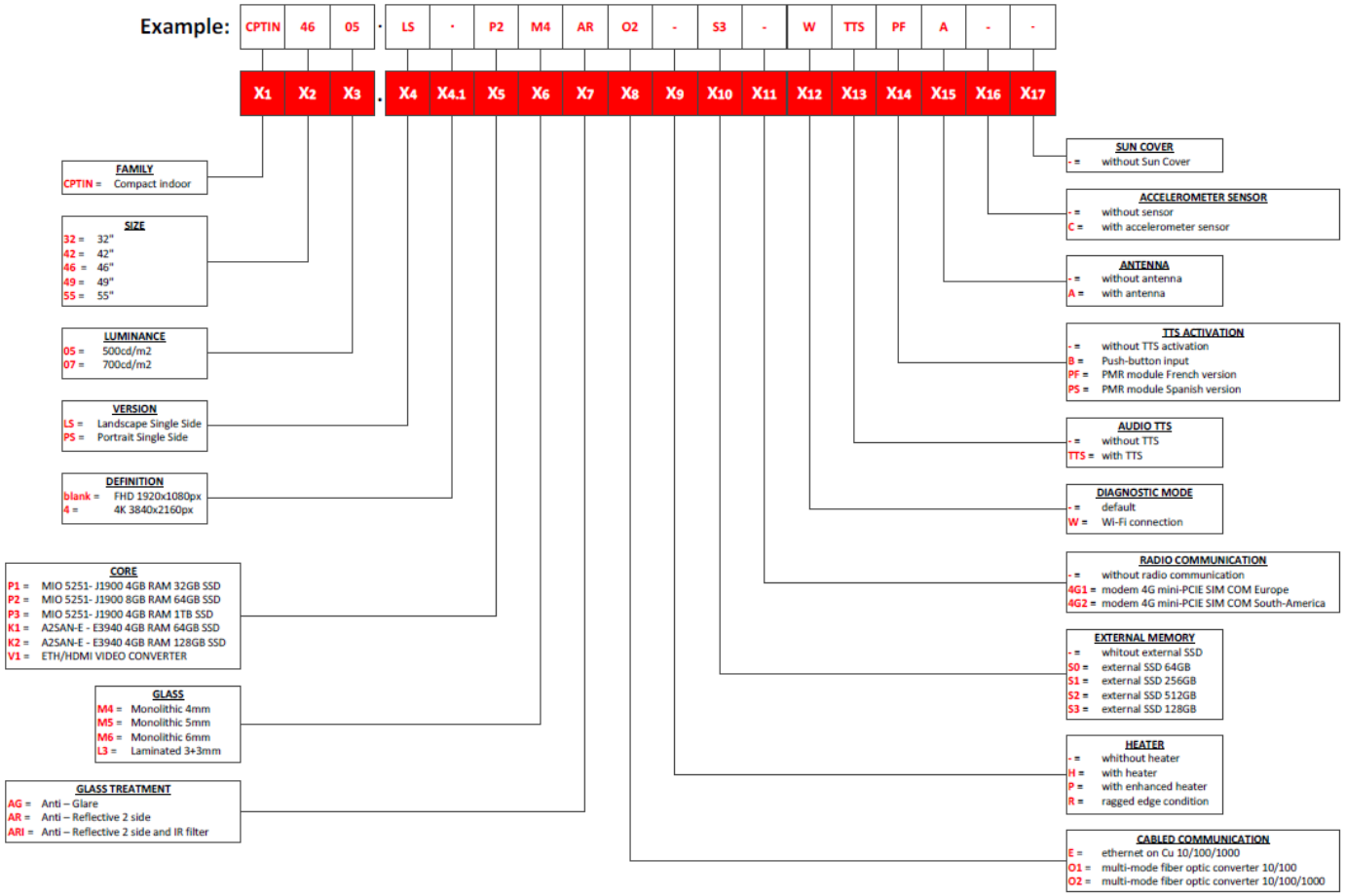
7 ADDITIONAL INFORMATION / NOTES
INFORMAZIONI AGGIUNTIVE / NOTE

7.1 CPTIN Family assessment
Valutazione famiglia CPTIN

The tested model represents the worst case with respect to the CPTIN family showed hereunder:


Example:
CPTIN 46 05 . LS . P2 M4 AR O2 - S3 - W TTS PF A - -
X1 X2 X3 . X4 X4.1 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17
FAMILY
CPTIN = Compact indoor
SIZE
32 = 32"
42 = 42"
46 = 46"
49 = 49"
55 = 55"
LUMINANCE
05 = 500cd/m2
07 = 700cd/m2
VERSION
LS = Landscape Single Side
PS = Portrait Single Side
DEFINITION
blank = FHD 1920x1080px
4 = 4K 3840x2160px
CORE
P1 = MIO 5251- J1900 4GB RAM 32GB SSD
P2 = MIO 5251- J1900 8GB RAM 64GB SSD
P3 = MIO 5251- J1900 4GB RAM 1TB SSD
K1 = A2SAN-E - E3940 4GB RAM 64GB SSD
K2 = A2SAN-E - E3940 4GB RAM 128GB SSD
V1 = ETH/HDMI VIDEO CONVERTER
GLASS
M4 = Monolithic 4mm
M5 = Monolithic 5mm
M6 = Monolithic 6mm
L3 = Laminated 3+3mm
GLASS TREATMENT
AG = Anti – Glare
AR = Anti – Reflective 2 side
ARI = Anti – Reflective 2 side and IR filter
SUN COVER
- = without Sun Cover
ACCELEROMETER SENSOR
- = without sensor
C = with accelerometer sensor
ANTENNA
- = without antenna
A = with antenna
TTS ACTIVATION
- = without TTS activation
B = Push-button input
PF = PMR module French version
PS = PMR module Spanish version
AUDIO TTS
- = without TTS
TTS = with TTS
DIAGNOSTIC MODE
- = default
W = Wi-Fi connection
RADIO COMMUNICATION
- = without radio communication
4G1 = modem 4G mini-PCIE SIM COM Europe
4G2 = modem 4G mini-PCIE SIM COM South-America
EXTERNAL MEMORY
- = whitout external SSD
S0 = external SSD 64GB
S1 = external SSD 256GB
S2 = external SSD 512GB
S3 = external SSD 128GB
HEATER
- = whithout heater
H = with heater
P = with enhanced heater
R = ragged edge condition
CABLED COMMUNICATION
E = ethernet on Cu 10/100/1000
O1 = multi-mode fiber optic converter 10/100
O2 = multi-mode fiber optic converter 10/100/1000

END OF TEST REPORT
Fine del rapporto di prova

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